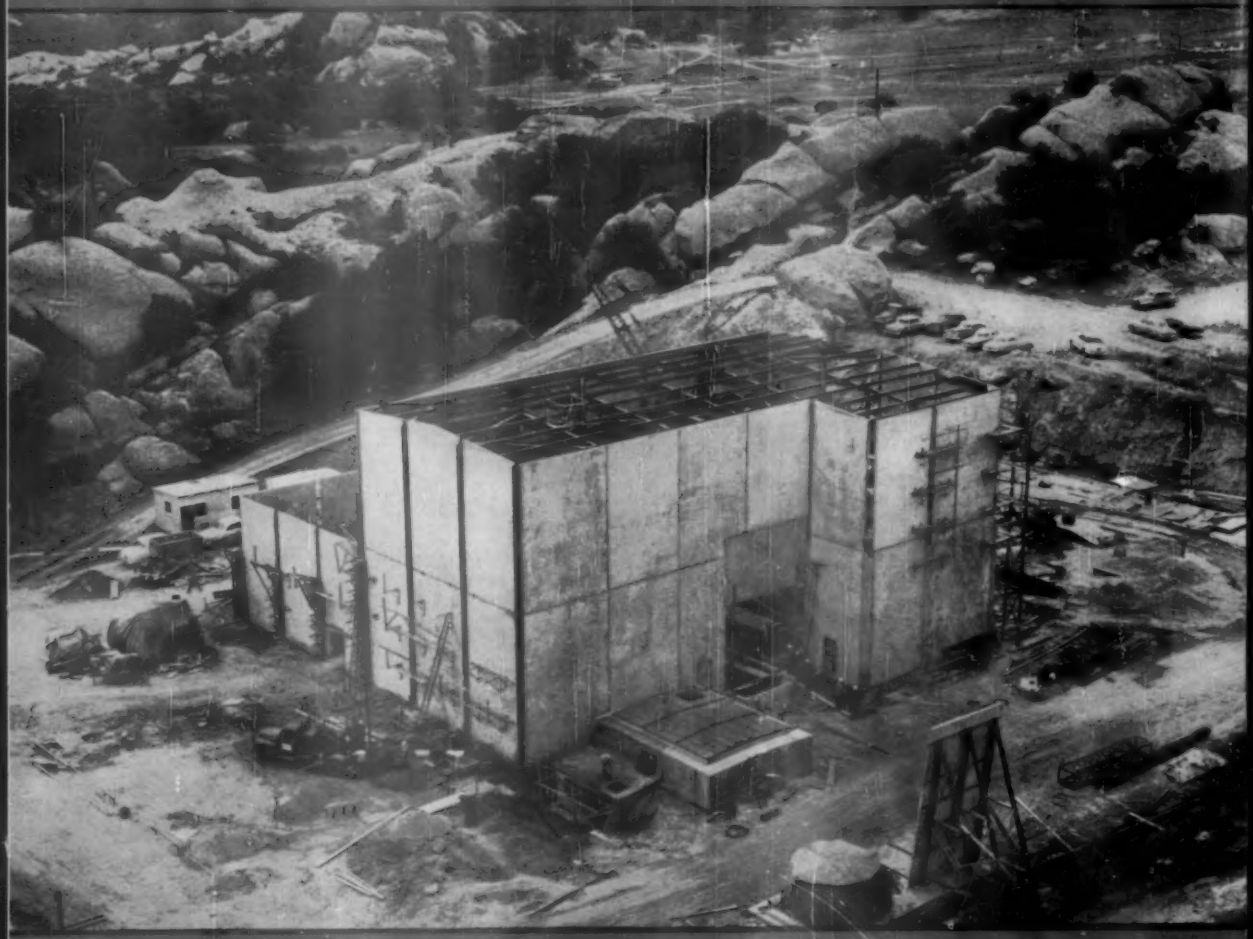
15¢
$5.50 A YEAR

February 18, 1956

VOL. 69, NO. 7 PAGES 97-112

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Peaceful Atom Power

See Page 99

A SCIENCE SERVICE PUBLICATION

any 3 for only $3.95

VALUES UP TO $16.95

as a dramatic demonstration of the superb books you can obtain at savings of as much as 40% by now joining the **science book club**

The Best Books in Science and Natural History

You pay nothing for the many advantages of this forward-looking club, which brings you the best and most advanced works in the entire fields of science and natural history.

THE CHALLENGE OF MAN'S FUTURE

By HARRISON BROWN

One of our top geo-chemists presents a sobering analysis of the hazards that face mankind in the future. "This objective work has high value."
—*Albert Einstein* **Retail Price $3.75**

EXPLORING MARS

By ROBERT S. RICHARDSON

A stimulating survey of the mysterious Red Planet, describing in detail *how* and *when* man can travel through space to reach it. Expressed simply, but with scientific enthusiasm. **Retail Price $4.00**

THE WORLD OF NATURAL HISTORY

By JOHN R. SAUNDERS

A personally conducted tour of that fabulous treasure house, the American Museum of Natural History.
Retail Price $5.00

A TREASURY OF SCIENCE

Edited by HARLOW SHAPLEY

A massive anthology of man's entire universe of knowledge, with selected writings of all the great scientists from Galileo to Einstein. **Retail Price $5.95**

LEONARDO DA VINCI

By ANTONINA VALLENTIN

A truly definitive and absorbing biography of the immortal genius who, 500 years ago, laid the foundation for half a dozen sciences. **Retail Price $5.00**

APES, ANGELS, AND VICTORIANS

By WILLIAM IRVINE

The story of Darwin and his discoveries in Evolution, their effect on science and religion, and of eloquent Huxley who championed him in an antagonistic world. **Retail Price $5.00**

OUR AMERICAN WEATHER

By GEORGE F. KIMBLE

Explains the *whys* and *wherefores* of our exceptional weather and the patterns that affect our daily lives. A work of wit, wisdom, and scientific authority.
Retail Price $4.75

ANIMALS, MEN, AND MYTHS

By RICHARD LEWINSOHN

Written by one of the most brilliant scientists of our time, this is a unique account of man's knowledge of the animal world down through the ages.
Retail Price $5.00

IDEAS AND OPINIONS OF ALBERT EINSTEIN

Assembled under the supervision of Einstein himself, this is the most complete collection of his popular writings ever published. **Retail Price $4.00**

MEN, ROCKETS, AND SPACE RATS

By LLOYD MALLAN

The startling story of today's achievements in the exploration of outer space and miraculous advances in rocket development. Reveals formerly secret information. **Retail Price $6.00**

SALAMANDERS AND OTHER WONDERS

By WILLY LEY

Marvelous scientific truths about little-known and extinct species. A fabulous collection of scientific wonders by a famous writer in the field of science.
Retail Price $3.95

ATOMS FOR PEACE

By DAVID O. WOODBURY

Does the "peace atom" offer man unlimited riches? A competent authority explains the possibilities and estimates *when* we can expect changes to begin.
Retail Price $3.50

BENEFITS YOU ENJOY AS A MEMBER

THIS NEW KIND OF BOOK CLUB is for people interested in Science... who want to keep abreast of scientific discoveries, inventions and developments of all kinds the world over.

Each month the Club's editors select an outstanding book. This and other significant works in the same field are described in *The Science Report* which you receive free.

By joining NOW, you receive ANY TWO of the books shown here as a GIFT and will be billed for the third at the special introductory rate of only $3.95 plus a nominal charge for packing and postage. For every four additional selections you take after joining, you receive a valuable Bonus Book FREE.

You do not have to accept every selection — as few as four a year fulfills your sole membership obligation. You accept *only* the books you want, and pay only the member's special reduced price, plus a small fixed mailing charge, *after* you have received them.

It costs you nothing to join and you may cancel your membership at any time after accepting four selections. Send no money. Just mail coupon now to: SCIENCE BOOK CLUB
Dept. 2156, 11 E. 36 St., N.Y. 16, N.Y.

SCIENCE BOOK CLUB, Inc., Dept. 2156
11 East 36th Street, New York 16, N. Y.

Please enroll me as a member and send me the THREE books checked. Two of these are to be FREE, as my membership gift, and I will be billed only $3.95, plus a nominal charge for postage and packing for the third which is to be my first selection. For each four additional selections I accept, I am to receive a valuable Bonus Book FREE. I am also to receive the Club's Science Report FREE each month. My only obligation is to accept as few as four selections the first year I am a member, paying only the members' special reduced price plus 25¢ for postage after receiving them.

- ☐ THE CHALLENGE OF MAN'S FUTURE
- ☐ IDEAS AND OPINIONS OF ALBERT EINSTEIN
- ☐ THE WORLD OF NATURAL HISTORY
- ☐ A TREASURY OF SCIENCE
- ☐ LEONARDO DA VINCI
- ☐ ATOMS FOR PEACE
- ☐ OUR AMERICAN WEATHER
- ☐ ANIMALS, MEN, AND MYTHS
- ☐ EXPLORING MARS
- ☐ MEN, ROCKETS, AND SPACE RATS
- ☐ SALAMANDERS AND OTHER WONDERS
- ☐ APES, ANGELS, AND VICTORIANS

Name_____

Address_____

City_____ Zone____ State_____

PUBLIC HEALTH

Yellow Fever in Mexico

Deadly disease will invade Mexico before end of 1956, World Health Organization official predicts. It is now only about 800 miles from the Florida Keys and Brownsville, Tex.

➤ YELLOW FEVER will invade Mexico within the next few months probably, and almost certainly within a year.

This prediction comes from Dr. Fred L. Soper, director of the Pan American Sanitary Bureau, regional office of the World Health Organization, with headquarters in Washington.

Yellow fever right now is only 75 or 80 miles from the Mexican-Guatemalan border.

It is only about 800 miles from the Florida Keys and Brownsville, Tex.

News of this close approach of the deadly disease was received in official notification from the Government of Guatemala that dead and dying monkeys are now being found around Lake Izabal and that there is evidence of the presence in that region of the yellow fever virus.

The distances from this region to the coastal city of Puerto Barrios and to British Honduras as well as to Mexico are very short. No apparent natural barrier to movement of yellow fever into these regions exists.

The great danger is that one or more persons bitten by yellow-fever-carrying mosquitoes might reach a seaport or other city where there are *Aedes aegypti* mosquitoes that also carry yellow fever. The short distances and speed of air travel would make it possible for an infected person to reach another country before his yellow fever infection was known.

These aegypti mosquitoes are found all over the whole southern third of the United States, from the southern border of Virginia to Yuma, Ariz., close to the Mexican border.

Mexico right now is engaged in a very active campaign to eradicate the urban yellow-fever-carrying mosquito. So are Cuba, Haiti, Jamaica, Trinidad and the Dominican Republic. Central America has cleaned up its aegypti mosquitoes almost entirely, although Guatemala and El Salvador may still have a few.

The weak spots for aegypti eradication in the Americas now are Mexico and the United States, with the United States farther behind than Mexico.

Because of our aegypti mosquitoes, the Surgeon General of the United States has, in accordance with international quarantine regulations, declared approximately the entire southern third of our nation a yellow fever "receptive area."

Science News Letter, February 18, 1956

AMERICAS' HEALTH PROMOTER—Since 1920 Dr. Fred L. Soper has been actively fighting disease in the Americas. As director of the Pan American Sanitary Bureau, regional office of the World Health Organization in Washington, he now heads the fight for health in the Western Hemisphere.

GENERAL SCIENCE

Sodium Graphite Reactor To Generate Electricity

See Front Cover

➤ THE FIRST non-military atomic energy reactor to produce power for the generation of electricity by a private utility will be the sodium graphite reactor nearing completion by Atomics International, a division of North American Aviation.

The nearly-completed California plant is shown on the cover of this week's SCIENCE NEWS LETTER.

Negotiations have been authorized by the Atomic Energy Commission for Atomics Internatonal and the Southern California Edison Company to enter into an agreement for the utility organization to install electrical generating equipment with a capacity of 7,500 electrical kilowatts adjacent to the nuclear plant to utilize the 20,000 kilowatts of heat produced by the reactor. The Sodium Graphite Experiment, SRE, a joint project between Atomics International and the AEC, is part of the Commission's program to develop economical power from nuclear energy.

Science News Letter, February 18, 1956

GEOGRAPHY

Explorers Find New Route to South Pole

➤ THREE NEW ZEALAND explorers have found a new route to the South Pole that Captain Robert Falcon Scott had missed, it was reported in Sydney, Australia.

The men found the route after climbing the Ferrar Glacier in the Antarctic. They were the first men to climb the glacier since Scott's 1911-13 expedition.

The New Zealanders are Trevor Hatherton, Lt. Comdr. J. L. Smith and B. Gunn, serving as observers with the American "Deepfreeze" expedition.

The report of their successful survey was radioed to Sir Edmund Hillary who will lead next year's New Zealand Antarctic Expedition. Sir Edmund is now in the Antarctic with the British Commonwealth expedition at Vahsel Bay, Weddell Sea.

After climbing the glacier, Hatherton, Smith and Gunn reached the peak of Beehive Mountain, 7,700 feet, named by Scott. They then began placing supply dumps for Dr. Vivian E. Fuchs' expedition, which plans to cross the Antarctic continent by land in 1957-58.

After mapping the upper reaches of the glacier and the nearby plateau, the New Zealanders discovered their route to the South Pole and a new mountain range never before seen.

Science News Letter, February 18, 1956

AVIATION

Strange Family of Planes

➤ FLYING VENETIAN BLINDS, barrels and platforms are being developed in an attempt to shorten the runway, Dr. Hugh L. Dryden, director of the National Advisory Committee for Aeronautics, the government research arm for aviation, has reported.

"It is obvious that there is a real and urgent need to learn how to build high performance airplanes, both military and civil, free from dependence upon miles of concrete," he told the Jet Age Conference of the Air Force Association held in Washington.

Dr. Dryden described several kinds of strange-looking aircraft being seriously studied or already experimentally airborne.

The VTO, or vertical take-off aircraft, combines the capabilities of vertical lift and high speed in forward flight in a single aircraft. Perhaps the simplest form of this plane, Dr. Dryden pointed out, is the one that stands on its tail, climbs straight up, tips over and flies horizontally, and then backs down on its tail to land.

Variations of this concept are the coleopter or "flying barrel" and the flying platform.

The zero-launcher approach places an essentially conventional airplane on the same kind of track as used for a guided missile, he explained. It is then kicked directly into the air by rockets. The same plane can then come down and land on an air mattress.

Research is continuing on the hydroski, or water ski, that when mounted on an airplane, makes the world's waterways into airfields.

A variation of the hydroski is the pantobase, which is landing gear that "will be suitable for use on land—concrete, sandy beaches, sod, snow and ice," Dr. Dryden said.

"Even less far removed from present practice of using conventional airplanes and long runways is the possibility of reducing take-off and landing runs by use of boundary layer control," he stated.

Still other methods being tested, he said, are the convertiplane that takes off like a helicopter and flies like an airplane, and tilting and venetian-blind winged aircraft. The last two types are VTO propeller-driven aircraft that have the fuselage horizontal for passenger comfort and cargo loading, and use movable wings to go straight up.

Science News Letter, February 18, 1956

PUBLIC HEALTH

Lung Cancer Solution

➤ A PRACTICAL SOLUTION to the lung cancer problem is coming in "the not too distant future," Dr. Ernest L. Wynder of Memorial Center for Cancer and Allied Diseases, New York, predicted at the meeting of the American Cancer Society in Cincinnati.

The solution will come, he said, from the increasing effort being made by several research laboratories to identify specific cancer-causing chemicals in tobacco tar that might then be removed from tobacco smoke or modified.

Tobacco smoking has been implicated as a cause of lung and larynx cancer in 18 studies by a variety of investigators, he reported.

No other plausible explanation has been advanced, he said, for the correlation of smoking to cancer of the lung. Every single investigator who has carried out a study on this subject has agreed that smoking represents a factor in development of lung cancer.

Without smoking, it has been estimated, the present rate in American and British males would be reduced by 80%, a saving at the present rate of about 15,000 American male lives per year.

No single cause of cancer, if there is a single one, has yet been discovered, Dr. Wynder said. Any agent that increases the risk for an organism, human or other, to develop cancer must be regarded as a cause. Smoking can be considered such an agent, he implied.

Since exposure to any known cancer-causing agent does not produce cancer in every case, however, there must be contributing causes within the organism itself.

Smoking is one of the habits which may affect a person's susceptibility to cancer. Other habits, and race, religion, place of residence, occupation, and economic and marital status may also affect susceptibility to cancer. As examples, Dr. Wynder pointed to the very high incidence of stomach cancer in Iceland and Japan contrasted to a low incidence in Indonesia.

Epidemiologic studies, which will show these differences, can be used in cancer prevention.

Science News Letter, February 18, 1956

AERONAUTICS

Radar to Help Bad-Weather Flying

➤ AIRCRAFT blanketed by storms will have a better chance for safe landings, following completion of the Civil Aeronautics Administration's announced plans to improve radar visibility in bad weather from the nation's airports.

With currently used radar beams, either vertically or horizontally polarized, an aircraft behind or before a storm front often fails to show as a "return" on the radar screen. Both vertically and horizontally polarized radar will be used in combination, allowing better radar "vision" in bad weather, under the new program.

Initially, the CAA will modify radars at La Guardia, Idlewild, Washington, Boston, Cleveland, Atlanta, Los Angeles and Chicago (O'Hare). Eventually, 25 existing radars will be changed over, the CAA said. The program is expected to get under way early next summer.

Science News Letter, February 18, 1956

SCIENCE NEWS LETTER

VOL. 69 FEBRUARY 18, 1956 NO. 7

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283) authorized February 28, 1950. Established in mimeographed form March 19, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, ELdorado 5-5666, and 435 N. Michigan Ave., Chicago 11, SUperior 7-6048.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees — Nominated by the American Association for the Advancement of Science: Kirtley F. Mather, Harvard University; Paul B. Sears, Yale University; Karl Lark-Horovitz, Purdue University. Nominated by the National Academy of Sciences: Edward U. Condon, Berkeley, Calif.; Harlow Shapley, Harvard College Observatory; George W. Corner, Carnegie Institution of Washington. Nominated by the National Research Council: Ross G. Harrison, Yale University; Leonard Carmichael, Smithsonian Institution; Jerome Hunsaker, Massachusetts Institute of Technology. Nominated by the Journalistic Profession: Neil H. Swanson, Ruxton, Md.; O. W. Riegel, Washington and Lee University; Michael A. Gorman, Flint Journal. Nominated by the Scripps Estate; Edward J. Meeman, Memphis Press-Scimitar; John T. O'Rourke, Washington Daily News; Charles E. Scripps, Cincinnati, Ohio.

Officers — President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff — Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Howard Simons, Dorothy Schriver, Helen M. Davis. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Production: Priscilla Howe, Marcia Nelson. Interlingua Division in New York: Alexander Gode, 80 E. 11th St., GRamercy 3-5410.

METEOROLOGY

Long-Range Weather

Special unit in Weather Bureau will test long-range weather forecasts using electronic computer, following success constructing mathematical model that worked for three weeks.

➤ AN ELECTRONIC COMPUTER will be used to predict weather several days or weeks in advance, a step being taken by the Weather Bureau as part of its program to improve the accuracy of weather forecasting.

The Bureau has formed a special research unit to test out numerical prediction methods for periods longer than three days in the future.

Instructions to the electronic computer for the required calculations are being coded, and the unit is expected to be in full operation by late spring, SCIENCE SERVICE learned.

An electronic computer is in daily use forecasting weather, but its predictions are only for about 48 hours in advance. (See SNL, Dec. 3, 1955, p. 362.) Forecasts for longer periods have to be based on different mathematical models of the atmosphere.

Success in constructing the first such mathematical model, which gives weather patterns for up to three weeks in the future, was one reason for starting the new unit. Dr. Norman A. Phillips of the Institute for Advanced Study, Princeton, N. J., devised the successful model. (See SNL, April 23, 1955, p. 269.)

Certain changes, expected to improve its accuracy, are now being made in that model, according to Dr. Joseph Smagorinsky, chief of the Bureau's general circulation research section, who heads the experimental project.

Once the machine is instructed on how to perform its calculations, Dr. Smagorinsky expects to let the computer make forecasts for as far in the future as possible.

This, he hopes, will be at least 30 days, or through one period of what weathermen call the index cycle. That is, long enough for the general characteristics of air flow to repeat themselves at least once.

At one point in the index cycle, Dr. Smagorinsky explained, atmospheric flow is zonal, or relatively parallel to the equator. This pattern gradually breaks down until large troughs and ridges are formed and the atmosphere is comparatively turbulent.

The time required for these changes from smooth to turbulent flow and back again is not predictable. If the time required to complete an index cycle were known, long-range forecasting would be done routinely and accurately.

Dr. Smagorinsky said the unit's work was two-pronged:

1. To construct, with what was now known, a mathematical model of the atmosphere that would reflect its actual state over a period of weeks as accurately as possible.

2. To make fundamental investigations of such fields as the effects of changes in solar output on weather, and how clouds form and dissipate, with the aim of being prepared to make more accurate numerical predictions at a later time.

The special unit, operated by the Weather Bureau, receives financial support from the Office of Naval Research and the Geophysics Research Directorate.

Its activities are guided by an advisory committee consisting of Dr. Harry Wexler, the Bureau's director of meteorological research, and Drs. John von Neumann and Jule Charney of the Institute for Advanced Study, Princeton, N. J., where studies on numerical weather forecasting were pioneered.

The unit will use the International Business Machines Corporation's electronic computer, the IBM 701, now being used for the daily predictions, to test out long-range numerical weather forecasts.

Science News Letter, February 18, 1956

• RADIO

Saturday, Feb. 25, 1956, 2:05-2:15 p.m. EST.

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Youthful winners of the Fifteenth Annual Science Talent Search for the Westinghouse Science Scholarships, who have been selected from the nation's high schools as potential creative scientists of the future, will describe their projects. Other winners appeared on last week's program.

SURGERY

Tooth Deformities Go With Spinal Curvature

➤ TOOTH DEFORMITIES and spinal curvatures are likely to develop in the same patient, perhaps because of common growth or development factors, an orthopedic surgeon, Dr. Charles V. Heck, and a dental surgeon, Dr. Everett A. Grimmer, both of Chicago, reported to the American Academy of Orthopaedic Surgeons meeting in Chicago.

Of 46 persons with spinal curvature in a group of 140 examined, 30 had one or more dental deformities. By contrast, only three among 17 with curvatures due to polio or to a congenital factor had dental deformities.

The dental deformities included overbite, receding lower jaw, irregular contour of the dental arches and high angular palate.

Science News Letter, February 18, 1956

JET PLANE FOR CARRIER—This new British swept-wing jet, the Vickers Supermarine N.113, has been ordered in quantity by the Royal Navy for aircraft carrier operation. It has high-lift flaps incorporating "supercirculation," whereby air ducted from the engine compressor is blown over the upper surface of the flaps, cutting down on deck-landing approach speed. It is powered by two Rolls Royce Avon turbojet engines, and fitted with a "tooth" wing leading edge and an all-moving tail.

MEDICINE

Seek Cancer Seed Killers

National Cancer Institute scientists search for chemical, to be used at time of surgery, to kill microscopic cancer cells that sometimes remain in wound after operation.

➤ A CHEMICAL to kill cancer cells that may be left behind in the wound after the surgeon has cut out the cancer is being sought by scientists at the National Cancer Institute, Bethesda, Md.

This "seeding" of the wound with a few tiny cancer cells has for some time been seen as a cause of cancer recurrence either at the original site or elsewhere in the body.

Cancer cells left behind might either grow where they are or travel along lymph channels to other parts of the body.

The best way to stop this would be to put a cancer-destroying chemical into the wound at the time the cancer is removed, the scientists point out. This, of course, depends on discovery of an effective chemical for the job.

Fortunately, not all cancer cells left behind in a wound will grow. Fortunately, too, surgeons very often are able to get all the cancer out.

Fresh proof that tiny fragments of the cancer, too small to be seen without a microscope, may break off and remain in the wound comes from a study by Drs. Robert R. Smith and Albert W. Hilberg of the National Cancer Institute.

These scientists washed out the wounds of 36 cancer patients after the cancers had been removed and just before the skin flaps were sewed back in place.

The washing was done by a fine spray of a sterile salt solution too weak to be irritating. The washings were spun in a centrifuge and the sediment collected was examined under the microscope after it had been properly stained.

In 10 of 36 cases, washings contained cancer cells. In another five, cancer cells were suspected. In 21, there was no evidence of remaining cancer cells. It is only 21 months since the study was started, but five of the 36 patients have already developed recurrent cancer where the original one was removed. Two of these were in cases in which the wound washings showed cancer cells. One was one of the suspicious washings. The other two were ones in which the washings did not show definite evidence of cancer.

In their report in the *Journal of the National Cancer Institute* (Dec., 1955), the scientists state:

"Studies are under way to develop means of destroying the tumor tissue which may be present in an operative wound. Effective local chemotherapy of cancer can best be accomplished at the time of the primary surgical removal of the cancerous tissue.

"If and when an effective chemotherapeutic agent is discovered which can selectively destroy cancer cells that either become embedded in the wound or break off and are free in the intact blood of lymph channels, effective therapy of cancer will be available."

Science News Letter, February 18, 1956

PSYCHOLOGY

No Learning During Sleep

➤ LEARNING during sleep is impractical and probably impossible, Drs. Charles W. Simon and William H. Emmons conclude from a study made at the Rand Corporation, Santa Monica, Calif.

The reason this has not been conclusively demonstrated previously, they explain, is because insufficient precautions were taken in earlier experiments to be sure learners were actually asleep and not in the twilight zone between sleeping and waking.

Whether this drowsy state can be utilized for training is still open to speculation.

Even if you could learn while drowsy, you should weigh the advantage of what limited learning you might accomplish against the disadvantage of having your sleep disturbed, they state.

The Rand scientists made sure their subjects were asleep by tapping the electric impulses direct from their brains.

The Rand Corporation is an organization doing research for the Air Force.

The ten junior college students, nine scientists and two policemen used as subjects all were found to have a persistent brain wave pattern when they were awake but relaxed with eyes closed. This pattern is known to scientists as " alpha rhythm."

Training was given by playing questions and their answers on a tape recorder to the sleepers at the rate of one question-answer combination every five minutes.

Sleep consists of eight different levels, from the relaxed-but-awake level to very deep sleep, the scientists learned by watching the brain wave patterns. Most investigators believe an individual is asleep when he reaches the sixth level, although some would say that a person is asleep toward the lower part of the fifth level.

The fifth level, the Rand investigators call a "dreamlike state." In it the alpha rhythm tends to disappear, although the question-answer is followed by brain waves, some of which are within the alpha range. At this level the sleeper is easily awakened. The sixth level is "light sleep," during which a new pattern of brain waves appears, which the investigators call "sleep spindles."

In the morning when they woke up, the sleepers were given the questions and asked to write the answers.

The questions given after the subjects were asleep, as indicated by disappearance of the alpha rhythm brain waves, were practically all missed, showing that learning did not take place during deep sleep.

"Perhaps the future development of new and unknown techniques will permit someone to learn complex material while he sleeps," the scientists state in the *Journal of Experimental Psychology* (Feb.). But for the present, sleep-learning is not the simple matter that some experimenters and commercial firms, which sell equipment for this purpose, would lead us to believe."

Science News Letter, February 18, 1956

MEDICINE

Young Personalities and High Blood Pressure

➤ PERSONS with high blood pressure generally have a low emotional boiling point, and are less flexible and less assertive than individuals without the disease, experiments indicate.

A team of scientists found that personalities of a group of women with high blood pressure were similar to personalities of younger persons, including a group of military officers, who were at the top of the normal blood pressure range.

A high percentage of the latter, called pre-hypertensives, eventually develop the disease.

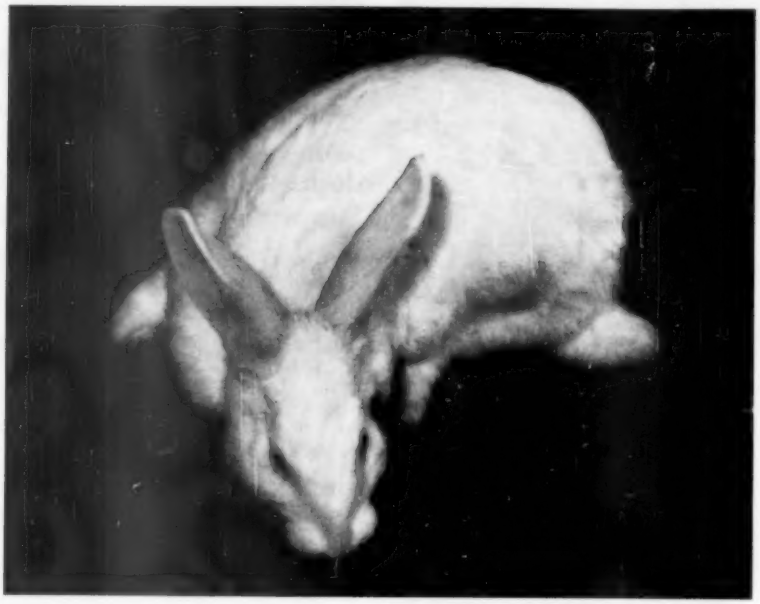
The scientists, Drs. Betty L. Kalis, Robert E. Harris, Lewis G. Carpenter and Maurice Sokolow of the University of California Medical Center, San Francisco, conclude that personality has much to do with development of high blood pressure, or hypertension. They hinted that some day they hope to be able to spot people who are likely to get the disease long before it develops.

The scientists subjected 14 hypertensive and 22 non-hypertensive women to emotional stress in two psychodramas. Proof that these psychological "plays" produced stress were an average rise in blood pressure of 15 points in hypertensives and nine points in normals.

Psychologists and psychiatrists scored the reactions of the women, without knowing who had the disease.

Consistently the hypertensive women were more extreme in their reactions. They blew up or they gave up meekly in situations in which most of the normal women persistently, firmly and tactfully pursued objectives. The hypertensives' blood pressure and heart rate also rose higher.

Science News Letter, February 18, 1956



LEFTING RABBIT—When this bunny gets up to walk, it will keep circling to the left. The reason: an abnormally high amount of the nerve chemical, acetylcholine, has accumulated in the right side of the animal's brain. The nerve gas poison DFP, short for di-isopropyl fluorophosphate, can cause the rabbit to circle to the left if the chemical is injected into a vein deep within the right side of the neck. Injection of the anti-nerve gas chemical, atropine, will stop the lefting movement. The lefting rabbit is helping scientists at Galesburg State Research Hospital, Galesburg, Ill., learn more about the brain's chemistry and how to use chemicals to control brain diseases.

PSYCHIATRY

Diagnose Mental Ills

➤ BRAIN WAVES have now been put to practical use in diagnosing mental disease.

This use of the recordings of electrical impulses from human brains was developed by Dr. Charles Shagass of the Allan Memorial Institute of Psychiatry and McGill University, Montreal. It is believed the first time such use has been made of brain wave records.

Typical diagnostic records were shown during a visit of science writers to the Institute. (See p. 111 and SNL, Feb. 11, pp. 84 and 89 for related stories.)

Greatest practical importance is that the psychiatrist can quickly determine whether a patient is suffering from a psychotic depression or a neurotic depression. While symptoms of the two kinds of depression are often much alike, treatment is quite different. For the psychotic depression, electroshock is usually the treatment. For the neurotic depression, other, much slower methods must be used.

The test is made by injecting into the patient's vein a small amount of the sleeping medicine, sodium amytal. This small dose, equivalent to about one and a half sleeping pills, is injected every 40 seconds, until the patient's speech becomes slurred. At the same time brain wave recordings are being made.

When the point of slurred speech has been reached, the brain wave record shows a change. This is called the sedation threshold. If the sedation threshold is low, the patient's depression is psychotic. The more neurotic the patient, the higher the sedation threshold, that is, the more of the sleeping drug is needed to bring about the characteristic change in brain wave record.

Dr. Shagass compares this sedation threshold test to the white blood cell test doctors make when a patient has fever, in order to determine whether the infection causing the fever is bacterial or virus caused.

Different degrees of anxiety in neurotic patients can be measured by the test. It also distinguishes between organic brain disease and some acute and chronic mental sicknesses.

Both the rabbit and brain wave records were shown to science writers on a tour of mental health facilities.

Science News Letter, February 18, 1956

MEDICINE

Indict Many Insects As Allergy Causes

➤ ADD TO THE long list of things that can cause allergic reactions like hay fever: may flies, silk cocoons, ant eggs, fruit flies, and perhaps other insects.

Nearly 30% of patients with asthma or hay fever symptoms were sensitive to these or other insects, Drs. Alan Feinberg, Samuel Feinberg and Carlos Benaim-Pinto of Northwestern University Medical Center, Chicago, reported at the American Academy of Allergy meeting in St. Louis.

"Since there exist tens of thousands of insect species, the problems of diagnosis and treatment are tremendously complicated," the doctors said. "We have found so far that patients who are sensitive to one insect as shown by skin tests are usually sensitive to a number of other insects."

They treated a small number of patients by desensitization with a series of injections of weak solutions of the insect antigen, the stuff that produces the allergy. Results were "encouraging."

Science News Letter, February 18, 1956

DENTISTRY

Blame Pyorrhea on Lack of Vitamins

➤ DEFICIENCIES of two B vitamins, pantothenic acid and nicotinamide, may help cause pyorrhea, according to findings of two scientists at the University of California College of Dentistry.

Drs. Hermann Becks and Perry Ratcliff have found the quantities of the two vitamins in body fluids of people with parodontal lesions, or pyorrhea, is lower than normal.

Generally, the disease is attributed to local irritants, such as tartar on the teeth or malocclusion. Actually, the vitamin deficiency as well as the mechanical factors may be involved.

Dr. Becks and Dr. Agnes Fay Morgan of the University of California, Berkeley, found 20 years ago that deficiencies of pantothenic acid and nicotinamide cause destructive changes in the mucous membrane of animals' mouths, such as gums, tongue and lips.

Experiments on man, however, have been difficult. Only recently have laboratory techniques been developed that make it possible to measure concentrations of the two vitamins in the blood and urine.

Tests by Drs. Becks and Ratcliff on 156 individuals between the ages of 10 and 75 showed that those with parodontal disease had approximately 30% less pantothenic acid and 15% to 20% less nicotinamide in the blood than normal.

The scientists are carrying the experiments further, to determine whether the levels of B vitamins can be increased and whether the treatment of pyorrhea is improved by the use of vitamins and diet.

Science News Letter, February 18, 1956

MEDICINE

Measure Palsy Shakes Using Electronics

➤ An "electronic apparatus" for measuring the shakes, or tremors, of shaking palsy and also the rigidity that is a feature of this disease has been developed by Drs. Frederic J. Agate, Jr., and Lewis J. Doshay and F. Kingsbury Curtis of Columbia University and the Neurological Institute of Presbyterian Hospital, New York.

The device measures the torque exerted on the patient's forearm during extension, that is, rotation through 90 degrees about the elbow joint. A ring fitted to the base of the patient's second finger is connected to the device for measuring the tremors.

The device is reported in the *Journal of the American Medical Association* (Feb. 4). It was used to score numerically the results of treatment with the drug, ethopropazine, or Parsidol, in patients with shaking palsy, which doctors call paralysis agitans.

This drug first became generally available to U. S. physicians in 1954. (See SNL, March 6, 1954, p. 147.)

Scores obtained with the drug were compared to scores obtained when the patients were getting a placebo, or dummy medicine. More than half the patients, 55%, showed a reduction in rigidity from the new drug, while 69% showed from 20% to 70% improvement in major and minor tremors.

Science News Letter, February 18, 1956

MEDICINE

Alcohol Makes Ulcers In Guinea Pigs

➤ ADVICE to those contemplating a lifetime of heavy drinking: Stick to beer and light wines and don't drink on an empty stomach.

This comes from studies of the stomachs of human alcoholics and of stomachs of guinea pigs. The guinea pigs were given various amounts of alcohol in various concentrations both when fasting and when not fasting.

The studies are reported by Dr. A. Wynn Williams of the University of Edinburgh, Scotland, in *British Medical Journal* (Feb. 4).

Hemorrhages, eroded spots and ulcers were found in the guinea pig stomachs when the animals were given by stomach tube alcoholic solutions of more than 20% concentration.

These included "reputable brands of 'neat' Scotch and Irish whisky or gin." The 20% concentration is equivalent to fortified wines such as sherry and port. Beer and cider, Dr. Williams points out, have an alcohol concentration of five percent to ten percent.

Stomach linings of 25 adult human alcoholics were examined. Of these, the linings were normal in nine with an average age of 38.5 years, mild to moderately severe inflammatory changes were present in seven whose ages averaged 46 years, and chronic atrophic gastritis was found in six with an average age of 52.5 years.

Hemorrhages were found in the linings of five stomachs and erosions in six. Peptic ulcers were found in six.

The trend toward increasing amount and severity of chronic gastritis with increasing age of the alcoholic patients is significant, Dr. Williams suggests.

A normal appearance of the stomach lining, he reports, "is not infrequently found in alcoholics and the relationship of alcoholism to chronic gastritis is uncertain."

Although there is no proof that alcohol produces peptic ulcers in humans or interferes with their healing, Dr. Williams says it would be "prudent" for ulcer patients to avoid strong alcoholic drinks.

Science News Letter, February 18, 1956

ELECTRONICS

Predict Stock's Future By Electronic Computer

➤ WHETHER A STOCK'S VALUE will go up or down in the future is being predicted experimentally by an electronic computer, Dr. Lawrence Rosenfeld of Melpar, Inc., Cambridge, Mass., reported in San Francisco.

The program is so new its success or failure is still to be determined, Dr. Rosenfeld said. If it proves impossible to forecast a stock's future behavior with formulas he is now using, Dr. Rosenfeld said the failure should point the way to a correct solution.

He outlined his methods for determining short-range fluctuations in the stock market at the 1956 Western Joint Computer Conference and Exhibit in San Francisco, noting that it was only one of several types of problems computers could solve.

Dr. Rosenfeld said his predictions were limited to one or two weeks to two months in the future, forecasting a stock's growth or decline without taking into account such long-range factors as the company's strength compared to its competitors.

He is trying to predict the "little peaks" of five percent to ten percent, in order to take a short-term profit when they occur. The method is being tested for about 2,000 stocks on both boards, the New York Stock Exchange and the American Stock Exchange.

If he can work out a way to forecast successfully one stock's fluctuations, Dr. Rosenfeld said, he would be able to tell future trends for all of them.

"Chartists," or persons who plot the opening and closing quotations of stocks, have noted that the daily geometrical patterns they draw seem to indicate future trends. Too many calculations are needed, however, for the chartists to make predictions.

An electronic computer, when properly directed, can make the required calculations, Dr. Rosenfeld said.

Science News Letter, February 18, 1956

IN SCIEN

GENERAL SCIENCE

Report on Foundations' Support of Research

➤ LESS THAN FOUR CENTS out of every U. S. philanthropic dollar is spent by the 77 large, privately endowed foundations.

Of $164,000,000 spent in 1953 by these foundations, only $26,000,000 was spent for scientific research. This is shown by a survey made by the Russell Sage Foundation for the National Science Foundation and issued recently.

Private foundation expenditures for science are less than one percent of the estimated national total for all research and development. Only 43 out of the 77 major foundations supported scientific research.

Considered and imaginative investment of small sums accomplishes great purposes, Donald Young, Russell Sage Foundation president, commented in the report.

Science News Letter, February 18, 1956

ORNITHOLOGY

Aussies' Laughing Bird Being Exterminated

➤ THE LAUGHING JACKASS, or kookaburra, Australia's friendly bird of the bush, is threatened with extermination.

The kookaburra is a protected bird, but many new migrants to Australia do not know it is an offense to kill it.

J. Baker, a delegate at the Australian Teachers Federation Conference in Hobart, Tasmania, said new settlers were killing and eating thousands of kookaburras.

The conference decided to ask the Australian federal government to launch a campaign for the preservation of Australian fauna and flora.

The extraordinary laughing notes of the kookaburra are the most familiar sound in the Australian bush. They may be heard at all times of the day, but especially in the early morning and in the twilight.

Kookaburras are found all over eastern and southern Australia. They are very sociable in their habits and often get together in groups of a dozen.

They live on snakes, insects and carrion. They dive on snakes from gum tree boughs and carry them off in their beaks. They kill the snakes by dropping them from a height or by beating their necks against a tree trunk.

The kookaburra, *Dacelo gigas,* is a member of the kingfisher family.

They are easily made into pets, and laugh at the slightest encouragement of laughter from the human voice.

Science News Letter, February 18, 1956

E FIELDS

METALLURGY

Hot Rolling Makes Hafnium Usable

➤ HAFNIUM, a rare metal similar to titanium and zirconium, can be rolled to any desired thickness if heated to 500 degrees Centigrade, which is 932 degrees Fahrenheit, it has been found at the Missouri School of Mines and Metallurgy, Rolla, Mo.

Use of the metal has been limited heretofore by its tendency to crack when cold-rolled.

Discovered in 1923, hafnium was a chemical curiosity until, as a result of the program to use atomic energy, metals were re-evaluated for their capacities to absorb neutrons. Zirconium has been found suitable for constructing atomic power reactors but hafnium, which occurs with zirconium, has a different ability.

In this respect, U. S. Bureau of Mines scientists are working with Atomic Energy Commission scientists to find uses for the rarer metal, obtained as a by-product of increasing zirconium production.

They furnished samples of hafnium to D. S. Eppelsheimer and D. S. Gould of the School of Mines. The results of the metallurgical experiments, which show hafnium to be corrosion-resistant and to have a high melting point, are reported in *Nature* (Feb. 4).

Science News Letter, February 18, 1956

GENETICS

No Wholesale Genetic Danger from A-Bomb

➤ "PROPHECIES of wholesale racial degeneration resulting from experimental atomic explosions" get a big no from Prof. J. B. S. Haldane of University College, London, in *Nature* (Feb. 4).

However, figures suggest "a more serious situation than some physicists have calculated," he warns.

Prof. Haldane's statement answers criticism by Dr. F. W. Spiers of the department of medical physics, University, Leeds, of an earlier statement by Prof. Haldane.

Dr. Spiers questions whether effects of radiation on genetic mutations in fruit flies, *Drosophila,* can be used for calculating radiation effects on human mutations.

He points out that such calculations assume the background dose rates to the reproductive organs of all species are identical. Those organs of the fruit fly are exposed to both beta and gamma rays, he points out, whereas those in most mammals are screened entirely from external beta rays and even partly from gamma rays.

Dr. Spiers particularly objects to Prof. Haldane's earlier statement that most human mutations may be caused by background radiation present in the atmosphere when no nuclear explosions are taking place.

Prof. Haldane still thinks this may be the case. He quotes figures from studies by various scientists of mice as well as fruit flies, which suggest that 30% to 40% of human mutations "might be due to high energy events."

Since these estimates are "extremely uncertain," Prof. Haldane still thinks it not impossible or even very improbable that most human mutations are due to background radiation.

"This hypothesis," he states, "gives an upper limit to the possible harmful effect of induced radioactivity. Even if, as I hope, this limit is too high by a factor of 10 or even 100, it seems worth stating, if only because, while suggesting a more serious situation than some physicists have calculated, it decisively negates prophecies of wholesale racial degeneration resulting from experimental atomic explosions."

Science News Letter, February 18, 1956

NUTRITION

Potatoes Found Good Food Buy

➤ BUDGET-CONSCIOUS HOUSEWIVES have long rated potatoes as a good food buy because they help fill hungry stomachs at low cost. The lowly spud, however, is also rated a good food buy by nutritionists.

One medium-sized potato, cooked plain, gives you one-fourth of your daily quota of vitamin C, plus some of the B vitamins, iron and other important minerals.

Potatoes are not only filling. They are a cheap energy food. Penny for penny they are on top of the vegetable list in providing energy-giving food value, U. S. Department of Agriculture nutritionists point out.

Contrary to some belief, potatoes need not be fattening. One medium-sized baked or boiled potato furnishes about 100 calories when served without fat. Of course, putting butter or margarine on a baked potato or gravy on a boiled potato adds calories.

If you are counting calories, watch out for mashed potatoes, since the cook adds milk, sometimes cream and sometimes fat to them. Fried and hash-browned potatoes also have added calories from the fat.

Sometimes when you buy potatoes you will find a green color on some part of the surface. This condition is known as sunburn. Sunburned potatoes usually have a bitter taste making them largely inedible.

If you are going to store potatoes, remember that the late crop ones are best for this purpose. Sort them before you store, setting aside for first use any that might be bruised or cracked. Keep potatoes cool but not cold. Temperatures advised by experts are between 40 degrees and 60 degrees Fahrenheit.

Science News Letter, February 18, 1956

WILDLIFE

Wildlife Report Shows Americans' Interest Up

➤ AMERICA'S WILDLIFE refuges were used more during the fiscal year 1955 than at any previous time in history, the U. S. Fish and Wildlife Service states in its annual report.

A record-breaking 5,202,260 persons, armed with either picnic basket, camera, binoculars or hunting and fishing equipment, stalked the 264 National Wildlife Refuges.

"Activities of the Service," it was reported, "ran the scale from demonstrating how to prepare fish for a school lunch menu to managing the big fur seal herd on the Pribilof Islands of Alaska."

Some of the nation's wildlife gave the Service trouble last year, they reported. Efforts were made to control the sea lampreys that are devastating commercial fishing in the Great Lakes; blackbirds greedily feasted away on Arkansas' rice fields; rodents and other animals continued to eat forest seedlings.

In addition, hookworm took an annual toll of 100,000 fur seal pups.

Biological scientists working for the Service last year developed methods of predicting successfully the shad runs in both the Hudson and Connecticut rivers, electrical devices to help salmon over dams without fatal injury were further developed, and salmon were surveyed in thousands of miles of the Pacific to determine their distribution, abundance and identity.

The Service also reported that during the fiscal year 1955 more than 4,000,000 game fish over six inches in length were planted for sportsmen.

Science News Letter, February 18, 1956

GENERAL SCIENCE

High Science Enrollment In Nation's High Schools

➤ FIGURES showing that a large percentage of high school students study science have been obtained in a recent survey by the U. S. Office of Education.

They show that 72.6% of the students enrolled in the tenth grade took biology, the year this subject is usually taken.

The survey showed that 31.9% took chemistry in the 11th grade, the usual year for that science, and that 23.5% in the 12th grade took physics.

Actual figures of those taking the subjects based on an extrapolation of a 10% sample of 1954 registrations are biology, 1,293,900; chemistry, 482,700; physics, 302,800.

The survey was conducted by Dr. Kenneth Brown, mathematics specialist in the U. S. Office of Education.

Scientists and educators have been disturbed over the repetitions of statistics dating back to pre-World War II days, which gave a much more gloomy picture.

Science News Letter, February 18, 1956

PHYSIOLOGY

Sense of Smell

Sense of smell actually reveals true savor of foods. It provides enjoyment of flowers, perfumes, fresh-cut hay and burning leaves, and also serves as warning of contamination.

By RUTH and EDWARD BRECHER

➤ "MY, but this tastes good," you remark as you take your first sip of that delicious, piping-hot onion soup, salted, peppered, seasoned with thyme and garnished with Parmesan cheese.

You are wrong, of course. You mean that the soup smells good. Your sense of taste, dependent upon the taste buds distributed along your tongue, tells you only whether a substance is sweet, sour, salty or bitter.

It is your sense of smell that reveals the true savor of the soup—the delicate "flavor notes" that distinguish it from a thousand other foodstuffs.

Try sipping onion soup while pinching your nostrils, or when you have a head cold. The characteristic flavor vanishes. All that is left is a hot, somewhat salty liquid. By means of taste alone, you can barely distinguish between a food you love, such as cinnamon-topped applesauce, and one you detest, say stewed rhubarb.

Nerve-Rich Surfaces

Flavors reach the nose "through the back door": they travel from the mouth down the throat and then up again along the air passages which lead to the nasal cavities. You "smell" when you inhale; you sense flavors when you exhale; otherwise the two processes are the same. Both depend upon your olfactory tracts—the nerve-rich surfaces forming the ceilings of your two nasal cavities.

Each olfactory area is about the size of a postage stamp and located so high in the nasal passages that, during ordinary inhaling, moderately odorous air may pass under it without arousing any smell sensations.

When you see something whose odor you wish to sample, you sniff—and this carries the odor-laden air upward to the olfactory tract. There is no need to sniff while you eat, though. As you chew your food, warm vapors are released from it; the act of swallowing and the related act of exhaling pump these flavor-laden vapors upward toward the nose.

In general, the higher the temperature of a substance, the more molecules are given off, and the more intense is the odor. This basic relationship of aroma to temperature lies at the heart of the science of food preparation. It explains why good cooks insist on serving soups and other tasty dishes piping hot for maximum flavor.

Iced tea and coffee may be refreshing to drink, but they never achieve the full-bodied flavor of hot tea or hot coffee. Indeed, professional coffee tasters insist that hot coffee and iced coffee actually have *different* flavors.

The savor of frozen vegetables, fruits and other food items also depends partly on this flavor-temperature relationship. Green peas, asparagus, strawberries and other garden produce contain a variety of delectable flavor components rapidly lost at room temperatures.

By freezing immediately after picking, many of these flavor molecules can be "locked in." Hence food processors freeze their products as quickly as possible after harvesting.

Subtlest of Senses

In certain respects, smell is the subtlest of our senses. A scientist in his laboratory can, with the help of costly laboratory aids, identify one drop of a chemical mixed with a million drops of something else. But with his unaided nose, the same scientist or anyone else can instantly identify highly odorous mercaptan—the substance responsible for the stench of the skunk—even though each molecule of it is diluted with billions of molecules of air.

Although the gamut of visible colors are produced by combining the three primary colors: red, yellow and blue, odor specialists have been unable to identify the primary smells.

Every natural odor or flavor, most experts believe, is actually a blend of many. In coffee, for instance, chemists have identified more than 50 flavor components and suspect there are many more. Therefore they speak of a "flavor profile," in which each component modifies your reaction to the others.

Flavor in Cooking

A good cook uses this flavor profile instinctively in concocting her tastiest dishes. She adds spices and herbs in quantities too small to be identified individually, yet sufficient to achieve a striking total effect. The goal is to have guests ask, "What did you put into this to make it so delicious?" rather than, "Mmmm . . . Ginger, isn't it?"

Many people are extremely conservative in their flavor preferences. They object to change. Occasionally a food company has notably improved the flavor of a product only to be deluged with complaints that it "doesn't taste right." Most companies therefore introduce flavor changes gradually, in barely noticeable steps over months or years.

Food packagers report also a trend toward mildness or blandness of flavor in foods and beverages. Light coffees, light beers and relatively unflavored breads have seized the market from more highly flavored predecessors.

Our mints are less minty, our Camembert less Camemberty, and such insistent flavors as licorice are rarely met.

Satisfactory Odors

The same nose that guides you in food selection also provides your enjoyment of flowers, perfumes, the odors of a garden on a moist spring day, of fresh-cut hay in the summer or of burning leaves in the fall. It can summon out of the distant past an emotionally satisfying recollection of some early scene. A whiff of a particular perfume may transport a man back to the high-school commencement party and his first girl.

Why are some smells pleasant and some unpleasant? The answer seems to lie partly in the distant past of mankind and partly in our own experience. The stenches of rotting and of excrement are almost universally detested; they are warnings of possible contamination.

The odor of the skunk is nauseating not only to humans but to animals as well. Yet, skunk odor may be thoroughly enjoyed when sufficiently diluted and blended. Flavor experts report that among the many flavor components in beer is a very definite skunky note without which it would not taste like beer.

Acuteness of Smelling Sense

Do we differ much from one another in our sense of smell? Certainly there is some variation. It is said that women have a more acute sense of smell than men, and that our sense of smell becomes dulled as we grow older—so that we are more likely to enjoy highly flavored foods like anchovies and pickled herring late in life.

However, experts who have run thousands of taste-and-smell panel tests tell us that they are much more impressed by the similarity of smelling ability among people generally than by the differences.

It is widely believed that smoking, and drinking alcoholic beverages, dulls our sense of smell. The evidence is not impressive. Professional coffee tasters smoke at their tasting ritual.

It has also been reported that our sense of smell is most acute when we are hungriest, and loses some of its sharpness after eating. This may result from paying more attention to smells when we are hungry.

Exposure to a specific strong odor for a few minutes will dull your awareness of that particular odor; hence workers in industrial plants where a foul smell is always present soon lose their sensitivity to it.

However, even after spending an entire day in a beet-sugar factory where a highly objectionable odor is present, workers are still able to distinguish other smells without difficulty.

Some scientists think we are gradually losing our sense of smell. They tell stories of primitive tribesmen whose noses are sensitive enough to be used in tracking game.

But it is equally likely that our sense of smell is only lying dormant, ready to be used effectively whenever we choose to train it. A perfumer, after sniffing a flower carefully, can analyze its fragrance into numerous components and then blend appropriate substances to produce a scent barely distinguishable from the original.

A wine-taster, savoring a fine wine, can sometimes guess from its bouquet not only the type of wine but also the vineyard from which it came and the year in which the grapes were grown.

The extent to which much "nosey" enjoyment can be developed is dramatically illustrated in the experiences of Helen Keller. Blind and deaf, Miss Keller was from an early age far more dependent on her sense of smell than the rest of us. The late Dr. Frederick Tilney once resolved to test her sense of smell on a drive from New York City out to Long Island. Mile after mile, Miss Keller was able to identify her surroundings by smell alone.

"Now we are passing through grassy fields," she said as the car skirted a golf course. "Here are trees," she added, as a wooded grove whizzed past, "and there is a house with an open fire on the hearth."

Dr. Tilney had completely missed the house. Looking back he could see it, a wisp of smoke curling from its chimney.

This article was prepared for SCIENCE NEWS LETTER in cooperation with the *Reader's Digest*. It will appear in the March issue of that magazine.

Science News Letter, February 18, 1956

PHYSICS

Size of Anti-Proton

➤ THE ANTI-PROTON, newly discovered particle of negative matter, is twice the size scientists expected, Dr. Owen Chamberlain of the University of California reported to the American Physical Society meeting in New York.

He said experiments in Berkeley's giant cyclotron confirmed this "unexpected" property. (See SNL, Jan. 14, p. 21 and SNL, Dec. 24, p. 403.)

Dr. Edward Teller, also of the University of California, has predicted the future discovery of two new particles, tiny bits of matter that act as glue to bind atomic hearts together.

He said these yet-undiscovered particles were needed to explain the large effective size of the anti-proton.

More examples of the anti-proton are now being found, Dr. Chamberlain reported, as scientists learn exactly where to place the emulsions on which the negative particles register as stars.

The Berkeley group is collaborating with Dr. Eduordo Amaldi and his co-workers at Rome.

One "spectacular" star, found by Dr. Gerson Goldhaber and associates, is especially important. It has eight prongs, with three protons and five pi mesons, or pions. One pion decays into a mu meson and an electron. (See SNL, May 21, 1955, p. 330.)

Total visibile energy of this star is 1,230 million electron volts. It is important because this is in excess of the rest mass of either the proton or anti-proton, which is 938 million electron volts.

Finding this excess energy gives the best evidence yet that the anti-proton annihilates either a neutron or a proton. It is demonstrated by the fact that the visible energy exceeds that of one particle.

The difference between 1,230 million electron volts and the 1,876 million electron volts of two particles is in neutral particles not visible emerging from the star.

The anti-proton star first reported by Dr. Amaldi's group showed a visible energy of 826 million electron volts.

The negative particle of matter, for which evidence had long been sought, was discovered by precision measurements with counters by a team of Berkeley scientists last year. Besides Dr. Chamberlain, the group included Dr. Emilio Segre, Clyde Wiegand and Thomas Ypsilantis.

Science News Letter, February 18, 1956

CARDIOLOGY

Six Rules for Helping Heart Attack Victim

➤ CALL THE DOCTOR at once if someone is stricken with a heart attack.

This is the first of six rules for how to help in case of a heart attack given by the American Heart Association.

The others are:

"Help the patient take the position that is most comfortable for him. This will probably be halfway between lying and sitting. He usually cannot breathe comfortably if he lies flat.

"Do not attempt to carry or lift the patient without the physician's supervision.

"Loosen tight clothing such as belts and neckties.

"See that the patient does not become chilled, but do not induce sweating with too many blankets.

"Do not give stimulants such as whisky or brandy."

Science News Letter, February 18, 1956

MEDICINE

Patients Want Sympathy More Than Cures

➤ PATIENTS want sympathy, patience and understanding from their doctors more than guaranteed cures and "wonder drugs."

Most Americans, 82%, have a family doctor, or at least their own doctor, the one they call first when sick. They are less critical of their own doctor than of doctors in general. And they are less critical of doctors than doctors themselves are.

These findings are from a study sponsored by the American Medical Association. It consisted of a public opinion poll by an independent research organization, Ben Gaffin & Associates of Chicago.

Personal interviews were conducted with 3,000 members of the general public, 500 physicians in private practice, and 100 persons in each of the five following groups: lawyers; pharmacists; registered nurses; executive secretaries of state and county medical societies; and editors, commentators and columnists.

Doctors themselves "overwhelmingly" listed fees as the thing the public would be most likely to criticize about doctors. Yet although 71% of the doctors listed this, only 16% of the public said their own doctors' charges are too high.

While 19% of the public thought their own doctors hard to reach for emergency calls, 32% of the doctors thought this true of doctors. More than half, 51%, of the public, however, thought this was true of doctors in general.

More than a fourth, 27%, of the doctors thought it true that doctors keep patients with appointments waiting too long. Almost half the public, 41%, thought this was true of most doctors, but only 15% thought this true of their own doctor.

Very few of the public, only five percent, thought their own doctor too quick to recommend an operation. Twice as many, 10%, of doctors thought this was true. Many of the public, 31%, thought it true of most doctors.

Science News Letter, February 18, 1956

Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

THE ADVANCEMENT OF SCIENCE: Vol. XII, No. 47, 96 p., paper, 7 s. 6 d. Reporting the British Association for the Advancement of Science Bristol meeting in 1955.

APPROACHES TO THE STUDY OF HUMAN PERSONALITY: Psychiatric Research Reports of the American Psychiatric Association 2—Jacques S. Gottlieb, chairman—*American Psychiatric Association*, 176 p., paper, $2.00. Papers presented at a regional research conference of the Association.

ATOM HARVEST—Leonard Bertin—*Secker and Warburg*, 253 p., illus., about $3.60. The British atomic story by a London science writer.

THE COMPARATIVE PHYSIOLOGY OF REPRODUCTION AND THE EFFECTS OF SEX HORMONES IN VERTEBRATES: Part 1 of the Comparative Endocrinology of Vertebrates—I. Chester Jones and P. Eckstein, Eds.—*Cambridge University Press*, 253 p., illus. $8.50. Discussing the sex life of all sorts of creatures, including fish, birds and amphibia.

THE COMPLETE BOOK OF FIRST AID—John Henderson—*Duell, Sloan and Pearce* and *Little, Brown*, 341 p., illus, $3.50 A book for the home telling what to do and how in case of sudden illness or injury.

THE GOLDEN BOOK OF SCIENCE—Bertha Morris Parker, illustrated by Harry McNaught—*Simon and Schuster*, 97 p., illus., $3.95. A delightful introduction to the world of animals, plants, rocks, stars and machines.

IMPARTIAL MEDICAL TESTIMONY: A Report by a Special Committee of the Association of the Bar of the City of New York on the Medical Expert Testimony Project—The Committee—*Macmillan*, 188 p., $3.95. A unique experiment in medicolegal collaboration intended to do away with the "battle of experts."

MAJOR: The Story of a Black Bear—Robert M. McClung, author and illustrator—*Morrow*, 64 p., illus., $2.00. The story, told for children, of the growth and development of a bear in his natural habitat.

THE MICROBE'S CONTRIBUTION TO BIOLOGY—A. J. Kluyver and C. B. Van Niel—*Harvard University Press*, 182 p., illus., $4.00. The lowly, but extremely important, microbe accounts for almost one-half of the living protoplasm on earth, and microbes produce 95% of the carbon dioxide essential for plant life.

MINERALS YEARBOOK, 1952: Volume III, Area Reports—Mabel E. Winslow, Ed.—*Govt. Printing Office*, U. S. Bureau of Mines, 1050 p., illus., $3.75. Covering each of the 48 states, plus chapters on Alaska, the Territories and island possessions in the Pacific and Caribbean, and the Canal Zone. This volume also has a chapter recapitulating its statistics on a regional basis.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS FORTY-FIRST ANNUAL REPORT 1955: Administrative report without technical reports—Jerome C. Hunsaker, Chairman—*Govt. Printing Office*, 68 p., paper, 50 cents. Pointing to the relatively great importance of developing an atomic airplane and an intercontinental ballistic missile.

NATURE'S WONDERS IN FULL COLOR—Charles L. Sherman, Ed.—*Hanover House*, 252 p., illus., $7.50. For the nature lover.

PEACEFUL USES OF ATOMIC ENERGY: Background Material for the Report of the Panel on the Impact of the Peaceful Uses of Atomic Energy to the Joint Committee on Atomic Energy, Volume 2—Robert McKinney, Chairman—*Govt. Printing Office*, 749 p., illus., paper, $2.00. Intended to make available to the public a substantial and useful collation of relevant information.

PEACEFUL USES OF ATOMIC ENERGY: Report of the Panel on the Impact of the Peaceful Uses of Atomic Energy to the Joint Committee on Atomic Energy, Volume 1—Robert McKinney, Chairman—*Govt. Printing Office*, 155 p., illus., paper, 40 cents. Before it has much impact on our lives, peaceful atomic energy must first become economically competitive, the report points out.

PRINCIPLES OF CHEMICAL ENGINEERING THERMODYNAMICS—Ernest D. Wilson and Harold C. Ries—*McGraw-Hill*, 376 p., illus., $7.50. The authors are convinced that a working knowledge of thermodynamics is one of the most valuable assets a chemical engineer can have.

PROSPERITY BEYOND TOMORROW—Samuel H. Ordway, Jr. with foreword by Paul B. Sears—*Ronald*, 208 p., $3.00. A plea for using our great wealth of leisure in such a way that those who follow after us will also have leisure, freedom and a wealth of natural resources.

PROTECTING CHILDREN IN ADOPTION: Report of a Conference — Children's Bureau — *Govt. Printing Office*, 43 p., paper, 20 cents. Reporting a conference exploring possible ways to eliminate the "black market in babies" and other related problems.

PSYCHOLOGISTS IN ACTION—Elizabeth Ogg—*Public Affairs Committee*, Public Affairs Pamphlet No. 229, 28 p., illus., paper, 25 cents. Telling about some of the services and qualifications of the professional psychologist so that you can distinguish him from the quack.

RADIO-PHILATELIA — Herbert Rosen — *Audio-Master*, illus., paper, $2.00. Telling of postage stamps having to do with radio, television and telecommunications.

THREE MIOCENE PORPOISES FROM THE CALVERT CLIFFS, MARYLAND—Remington Kellogg—*Smithsonian*, 54 p., illus., paper, free upon request direct to publisher, Washington 25, D. C. Describing new species found in 1933 and 1939.

Science News Letter, February 18, 1956

TECHNOLOGY

South Africans Market Plastic-Wrapped Fruit

➤ A SOUTH AFRICAN manufacturing firm has made a machine that coats citrus fruits with a plastic film.

The coating is supposed to protect the fruit for six months and eliminate refrigeration, pre-cooling plants and special railway trucks.

The first shipment of plastic-coated citrus fruit, the U. S. Department of Agriculture reported, will be marketed by the South Africans sometime this year.

Science News Letter, February 18, 1956

ARCHAEOLOGY

Ancient Peruvian Cup

➤ ANCIENT PERUVIANS drank from a rare and distinctive vessel from which the liquid issued from the bottom, Dr. S. K. Lothrop of Peabody Museum, Cambridge, Mass., reports in *American Antiquity* (Jan.).

One type of "paccha," as this unusual drinking vessel is called, was made from human skulls. Skulls of important enemies were preserved as trophies from very early times in Peru, and it was apparently such skulls that were used as ceremonial drinking vessels.

Atahuallpa, while a prisoner of the Spaniards, startled them by producing a human head with a gold cup sunk in the top. The teeth of the skull were closed over a tube of silver.

Atahuallpa had been in battle a few days before his capture. He had killed many people and had captured his own brother and with him his golden drinking cup. It was the brother's cup that he had placed in the top of the brother's skull. He then sucked his chicha through the silver tube between the brother's teeth.

Other types of pacchas were made of wood and of pottery. Some of the pottery vessels were very elaborate. One portrays a man seated below a pottery jar with a short spout at the base so placed that it will pour liquid into the man's open mouth. The liquid runs through the man's body and then through the long base on which he is seated, finally emerging from a hole at the end.

It is probable, Dr. Lothrop believes, that these elaborate pottery vessels may be replicas of others made of a combination of materials as Atahuallpa's was.

Wooden pacchas are painted and carved with elaborate scenes, flowers, birds and animals. The chicha flows from the base of a bowl into open zig-zag channels cut in a long tongue which terminates in a spout and the drinker's mouth.

It has been suggested that the basins and zig-zag channels cut in the rock in various parts of Peru are really permanent pacchas dedicated to the use of the dead buried in the neighborhood.

The wooden pacchas must have been extremely difficult to manufacture and were rare. Dr. Lothrop has seen only six. Two are in the national museum in Madrid, two in the British Museum and two in the Peabody Museum. He has seen photographs of one other in the museum at Berlin.

A more commonly used drinking vessel among the ancient Peruvians was the kero, or quero. This was shaped like a wide-mouthed vase, not unlike our glass tumblers.

Science News Letter, February 18, 1956

GEOLOGY

Northernmost American Shore Washing Away

➤ THE NORTHERNMOST LAND under the United States flag is being washed away, Prof. G. E. MacGinitie of the California Institute of Technology reported to the Smithsonian Institution.

The shoreline of Point Barrow in northern Alaska is receding southward at a rate of about seven feet a year, Prof. MacGinitie said.

Based on the evidence of an Eskimo village that has disappeared, Prof. MacGinitie says it is probable that the Point Barrow shoreline extended at least 500 feet farther north 75 years ago. The recession is due to northeast-sweeping ocean currents and the wind tides on very low-lying land, he explained.

If it were not for these currents and tides, the land might be building up rather than washing away.

As director of the Navy's Arctic Research Laboratory at Point Barrow for more than a year, Prof. MacGinitie learned the Arctic Ocean is slightly less salty than other seas because of the many rivers draining into it, and that ice itself has much less effect on light than might be supposed.

"Within a tent in January," he reported, "even when the ice is five feet thick, a greenish glow comes through it from below. The snow cover itself reflects light but at the same time glows with transmitted light and much light enters through it into the ice and water below."

Science News Letter, February 18, 1956

BIOCHEMISTRY

Weed-Killer Suggested in New Cancer Research

➤ A NEW TOOL in cancer research may be a chemical now used as a weed-killer and cotton defoliant.

Dr. Werner Heim, Dr. David Appleman and H. T. Pyfrom of the University of California at Los Angeles College of Agriculture have discovered that weed-killing amino-triazole has the same effects as cancer on an important but little understood body enzyme.

This enzyme, known as catalase, occurs in red blood cells and in the liver and kidneys.

When amino-triazole was administered to experimental animals, catalase levels in the liver and kidney were greatly decreased. Blood catalase, however, remained at a normal level. This is the same effect on the enzyme as that produced by cancer growing anywhere in the body.

This identical action of amino-triazole and cancer on catalase promises new clues to the biochemistry of cancer.

Science News Letter, February 18, 1956

ASTRONOMY

Four Observatories Scan Jupiter's Radio Waves

➤ FOUR OBSERVATORIES are tuning in on radio waves from Jupiter to try to learn more about the planet's atmosphere and what causes the radio emission.

Jupiter is the first and only known planet in the solar system to send out radio signals picked up on earth. The "noise" is believed caused by large-scale thunderstorms in Jupiter's atmosphere.

Discovery that the giant planet was broadcasting radio waves of 22 megacycles, or 22,000,000 vibrations a second, was made last year by scientists at Carnegie Institution of Washington. (See SNL, April 16, 1955, p. 243.)

They are coordinating their continuing observations with the National Bureau of Standards' Central Radio Propagation Laboratory, Boulder, Colo., where Jupiter is being scanned at 18 and 20 megacycles.

Australian radio astronomers in Sydney are "listening" to Jupiter at 19.6 megacycles. Scientists at Ohio State University are planning to make radio observations at the same time Jupiter is photographed with the 69-inch reflecting telescope at Perkins Observatory, Delaware, Ohio.

Studying Jupiter at various wavelengths is expected to help solve the problem of exactly how the radio waves originate.

Jupiter can be seen in the eastern sky nightly in clear weather. It is brighter than any other planet or star except Venus, which appears low in the western sky in early evening.

Science News Letter, February 18, 1956

BIOLOGY

NATURE RAMBLINGS
by Horace Loftin

The Melancholy Sloth

➤ FOR MANY YEARS now, crossword puzzle enthusiasts have searched for a two-letter word for the three-toed sloth. Well, the word is "ai," used by Brazilians, and they in turn picked it up from Tupi Indians.

If you have ever seen a sloth, you will suspect how that name must have come about. While there is no record of the event, the "ai" surely must have been named for a deep sigh—"ay, ay, ay."

There is probably no face on earth that looks more woebegone than that of the sloth. Melancholy seems to emanate from this somber visage, and the viewer must sigh in sympathy as he looks at it, or erupt into laughter.

Many of the early explorers and naturalists of South and Central America actually believed that sloths are in constant suffering. They reasoned that the sloth is certainly unfitted for life on this earth as they looked at a captive specimen try laboriously but unsuccessfully to shuffle away on the ground, wearing that look of pain and resignation.

In a sense, they were quite right; for the sloth is unfitted for life on earth. It is almost completely an arboreal, or tree-dwelling, animal, and for that life it is admirably suited.

Those long, spidery legs with their great recurved hook-like claws make ground travel a feat of will and endurance for the sloth. But once in his tree home, those legs and claws are great assets.

Hanging securely by these mighty hooks from tree limbs, the sloth can eat, sleep, mate and travel in his upside-down position. His food is the leaves and fruit of trees. The less he moves and the slower he moves, the fewer are the chances of his being seen and made a meal of by large carnivores.

As part of his camouflage, the sloth lives in a remarkable relationship with an alga. The long, coarse hairs covering the sloth have a fluted or roughened surface, on which live the algae. These tiny plants give the sloth a definite greenish hue, which helps him blend in with his leafy surroundings.

There are two genera of sloths, *Bradypus,* having three claws, and *Choloepus,* with two claws, on each front foot. They are only found in the American tropics.

An additional note for crossword fans: a four-letter word for three-toed sloths is "unau," when you run across that one.

Science News Letter, February 18, 1956

GEOPHYSICS

Ocean Temperatures

➤ FEVER CHARTS of the world's oceans over the last 40 years show so little change it is hard to fit them to temperature increases of the air since 1900.

If earth's climate is actually getting warmer, then ocean temperatures should have warmed more than the one-fiftieth of a degree reported by Dr. Roger Revelle, director of Scripps Institution of Oceanography, La Jolla, Calif.

He told the Conference on Theoretical Geophysics held in Washington that warmer air would have melted sufficient ice to raise ocean levels more than has been recorded, only about four inches in 100 years.

Learning how heat is transferred by ocean circulations may help to solve this contradiction. An analysis that shows the main features of circulation in the Atlantic Ocean, including the Gulf Stream, was reported by Dr. Henry Stommel of Woods Hole Oceanographic Institution, Woods Hole, Mass.

Electronic "brains" may soon be used to test models of ocean circulations, just as they are now used to learn about weather patterns.

The "essential difference" between the general circulation of the atmosphere and of the oceans is that continents hem the oceans in, Dr. Stommel said, forcing water to flow mostly north-south rather than west-east as the atmosphere does.

One mathematical model tested out on an electronic computer by Dr. Jule G. Charney of the Institute for Advanced Study, Princeton, N. J., resulted in a flow pattern much like the real Gulf Stream. (See SNL, Aug. 28, 1954, p. 131.)

Its success showed, Dr. Stommel said, that frictional processes are limited to the relatively small areas of meanders and eddies found near the continents.

The conference was sponsored jointly by the Carnegie Institution of Washington and the National Science Foundation.

Science News Letter, February 18, 1956

BIOCHEMISTRY

Man's Brain Chemistry

➤ MAN'S BRAIN, in contrast to brains of lower animals, may be as highly differentiated chemically as it is intellectually.

Findings showing this, with their implication for better understanding of the human mind when healthy and when disordered, are coming from research by Dr. Williamina Himwich and associates at Galesburg State Research Hospital, Galesburg, Ill.

Dr. Williamina is the wife of the hospital's director of research, Dr. Harold Himwich.

She is trying to make a chemical map of the human brain, which can be compared to maps of the brain showing anatomical structures and nervous system activities and brain wave activities.

The chemical composition of the brain is different in different areas. The amount of a chemical, such as nitrogen, found in the fore part of the brain differs from that found at the back of the brain. While such differences also are found in animal brains, they are very much less than those found in human brains.

This gives Dr. Himwich the idea that man's brain may be as highly differentiated chemically as it is intellectually.

A small structure near the base of the brain, called the caudate nucleus, contains exceedingly large amounts of the enzyme, cholinesterase. These large amounts of the enzyme are found in the caudate nucleus of all species examined, such as rats, rabbits and man.

Scientists do not yet know what this means, although they do know that the enzyme destroys the nerve chemical acetylcholine and normally acts to prevent dangerously large accumulations of it at nerve endings.

Dr. Williamina Himwich showed a blue-eared rabbit to science writers visiting the Galesburg and other mental hospital research centers under the auspices of the National Mental Health Committee with a grant from Smith, Kline and French. (See p. 103 and SNL, Feb. 11, pp. 84 and 89 for related stories.)

The rabbit also had blue eyes, nose and mouth because the dye, methylene blue, had been injected into it. But Dr. Himwich said, if we could look into its brain, we would see no blue color there except perhaps in the lining of the blood vessels. This is because a mechanism known as the blood-brain barrier stops passage of most chemicals into the brain.

Only part of the brain that would be blue would be the hypothalamus, at the place where the stalk of the pituitary gland enters. Dr. Himwich and her group are trying now to find whether other chemicals, such as ether and the nerve gas-like chemical, DFP, and glutamic acid, believed to increase intelligence, can affect this region of the hypothalamus or penetrate the blood brain barrier.

The blood brain barrier is either lacking or undeveloped in new-born human babies and in infant rats. In the rats it develops at ten days of age.

If more can be learned about this structure, it may be possible to find ways of getting drugs through it into the brain to bring greater healing to sick minds.

Science News Letter, February 18, 1956

PUBLIC HEALTH

Urge Better Sanitation For "Take Out" Foods

➤ UNLESS certain sanitation safeguards are observed, restaurant "take out" foods, vending machine lunches and pre-cooked frozen dinners can be a source of food poisoning.

Charles Senn, sanitation expert at the University of California at Los Angeles School of Public Health and the Los Angeles City Health Department, issued this warning.

"One danger lies in not refrigerating or heating prepared foods properly after purchase," he said. "The most common type of food poisoning results from cooked foods because food poisoning germs can multiply to a danger point in three hours. This applies to restaurant take-out foods."

Demand for pre-cooked foods has become so great plant sanitary facilities have not caught up, Mr. Senn says.

An example is the preparation of frozen meat pies. Well-cooked ingredients are handled by many hands in filling pie shells. At home some housewives merely warm the product in the oven until it "feels right" when punched by a fork. Frequently the pies are not heated long enough to kill food poisoning germs.

Solution to the particular problem is reheating, and thus sterilizing, the meat pie filling before packaging. Long-range answer for all pre-cooked foods lies in heat-sealing and some sort of radiation treatment, Mr. Senn believes.

Science News Letter, February 18, 1956

Questions

CARDIOLOGY—What are six rules for helping heart attack victim? p. 107.

GENERAL SCIENCE—What amount is spent for scientific research by philanthropic organizations? p. 104.

GEOGRAPHY—What new route to the South Pole has been discovered? p. 99.

MEDICINE—What are cancer seeds? p. 102.

METEOROLOGYY—What is an index cycle? p. 101.

PSYCHIATRY—How can brain waves be used in diagnosing mental disease? p. 103.

PSYCHOLOGY—How has learning while asleep been shown impractical? p. 102.

PUBLIC HEALTH—What is expected to yield solution to lung cancer problem? p. 100.

Photographs: Cover, North American Aviation, Inc.; p. 99, Pan American Sanitary Bureau; p. 101, British Information Services; p. 103, Galesburg State Research Hospital; p. 112, Jad Products.

Shrimp is America's most valuable fishery product on the basis of income to fishermen.

The finest single threads of *spider silk* are only about one-millionth of an inch in thickness.

· New Machines and Gadgets ·

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 818. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

GARDEN POOL for the front or back lawn is made of white plastic. With an over-all dimension of 48 by 48 inches, the pool holds 75 gallons of water. It can be stocked with fish or made into a rock garden.

Science News Letter, February 18, 1956

SPEAKER MICROPHONE that weighs only one and one-third ounces is housed in a steel and thermosetting plastic case. Designed to be mounted in the housing of dictating machines and portable transceivers, the miniature mike measures one by one by three-quarters of an inch.

Science News Letter, February 18, 1956

INSULATING TAPE for laboratory use is made of plain, purified asbestos. Designed for hard-to-insulate apparatus, the tape is 1/32 inch thick, and is available in widths of one, one and one-half and two inches and in rolls of 100 feet long.

Science News Letter, February 18, 1956

PERSONAL ALARM wards off would-be attackers by means of a loud, piercing sound. Made to fit in the palm of the hand, the plastic alarm device weighs 10 ounces. Its siren, lasting 40 seconds, can be heard throughout a five-city-block area.

Science News Letter, February 18, 1956

GOLF CART CLIP keeps balls, tees and a pencil within easy reach, as shown in the photograph. Attached to the handle of any golf cart, the plastic holder grips two balls, five tees and a pencil in especially designed "fingers" that prevent anything from bouncing out. It is available in red, green or yellow.

Science News Letter, February 18, 1956

RADIO PAGER permits private, individual paging without the need of public address systems. The portable transistorized receiver weighs ten ounces and can be carried in or clipped to a pocket. Powered by a four-volt mercury cell battery, the receiver is free from common types of interference.

Science News Letter, February 18, 1956

TRAP-SHOOTING SET contains five targets and a target slinger. The targets are made of a porous, cellular material painted bright orange and measure four and three-quarters inches in diameter and one-half inch thick. Target slinger has a 15-inch handle. The target flutters and even changes course. This set is useful for practice shooting almost anywhere and at any time of year.

Science News Letter, February 18, 1956

RECEIVER KIT for building a do-it-yourself shortwave and broadcast receiver provides shortwave coverage from six to 18 megacycles, as well as tuning in standard broadcasts. The kit is complete with guide book, built-in loudspeaker and diagrams. AC-operated, the completed radio receiver uses no batteries.

Science News Letter, February 18, 1956

Do You Know?

In 1800 it took nine men on the farm to produce food for themselves and one other person; today one *farmer* produces for himself and 17 others.

A plastic racing helmet of the kind designed for youngsters has been found the best protection for an *epileptic* child against head injury during seizures.

A common aquarium *fish*, the walking perch, has been known to travel at least 300 feet over dry land in 30 minutes to go from one pool to another.

The sperm *whale*, largest of the toothed variety, is the enemy of all large squids, but the squid's beak is so indigestible it irritates the whale internally and causes the secretion of ambergris.

The *poison* of the black widow spider is highly toxic, about 16 times more powerful than rattlesnake poison.

In three days the sun radiates sufficient *energy* on the earth to replace all that stored in usable fossil fuels.